


EXHIBIT F

Infringement of Claim 1 of U.S. Patent Number 8,687,879 by Deep Lens

| CLAIM LANGUAGE | Infringing Application |
|---|--|
| <p>1. A non-transitory computer program product for automating the expert quantification of image data comprising: a computer-readable medium encoded with computer readable instructions executable by one or more computer processors to quantify image sets comprising a locked evolving algorithm, wherein said locked evolving algorithm is generated by:</p> | <div data-bbox="550 305 1593 399"> <p>Advanced Deep Convolutional Neural Network Approaches for Digital Pathology <u>Image Analysis</u>: a comprehensive evaluation with different use cases <small>Md Zahangir Alom, Theus Aspiras, Tarek M. Taha, Vijayan K. Asari, Dave Billiter, and TJ Bowen</small></p> </div> <div data-bbox="1614 305 1814 399">  </div> <p>Source: DPA Poster: “Advanced Deep Convolutional Neural Network Approaches for Digital Pathology Image Analysis: a comprehensive evaluation with different use cases.”</p> <p>Deep lens image processing software (“Infringing Product”) is a computer program product for generating image analysis.</p> |

obtaining a product algorithm for analysis of a first set of image data wherein said product algorithm is configured to recognize at least one entity within said first set of image data via a training mode that utilizes iterative input to an evolving algorithm obtained from at least one first user, wherein said training mode comprises:

IMPROVED DEEP CNN (DCNN) MODELS

- We have proposed and evaluated improved DCNN models that provide better performance in CP with a minimal amount of memory and computational requirements.
- IRRCNN and DCRN models are applied for different classification tasks.
- R2U-Net model is used for Nuclei, Epithelium, and Tubule Segmentation.
- A new R2U-Net based regression model named “UD-Net” for Lymphocyte detection.

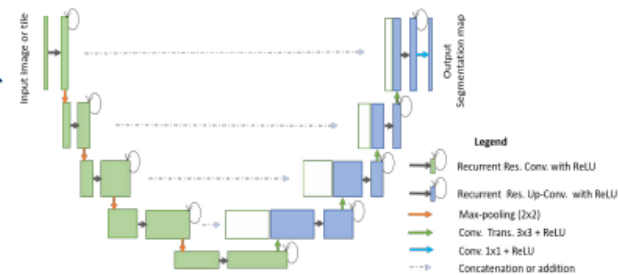


Figure 1. R2U-Net models with encoding and decoding units.

Source: PDF

Artificial Intelligence

Deep Lens is creating proprietary technology in computer vision across multiple cancer types to assist in visual analysis (i.e., AI and Deep Learning). AI has been available in other medical imaging spaces such as radiology for 20+ years because the complexity of diagnosis is much less varied than it is with pathology.

Dealing in multiple levels of magnification, multiple colors, multiple dimensional planes and requiring hundreds of visual cues that indicate disease or lack of disease is taxing on a person or a machine and requires significant horsepower.

Therefore the algorithms and compute power required to interpret them is much more intensive for pathology.

Our AI team, using the next generation of convolutional neural networks (CNNs) is adding features to our proven pathologist-developed workflow solution across dozens of cancer types and will make cell counting, IHC quantification (Ki67, PD-1, etc.), mitotic index counts, TIL counts and many more critical (but tedious) tasks instantaneous allowing the pathologist to focus on the nuanced work that they are trained to do and avoid error prone and time consuming work fit for a machine.

<https://www.deeplens.ai/ai-for-digital-pathology>

The Infringing Product generates an algorithm based on user manual annotation of objects of interest thereby training the algorithm.

presenting a first set of said at least one entity to said user for feedback as to the accuracy of said first set of identified entities; obtaining said feedback from said user; executing said evolving algorithm using said feedback;

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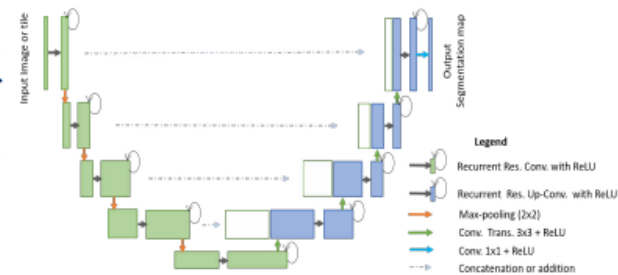


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presenting a second set of said at least one entity to said user for feedback as to the accuracy of said second set of identified entities; obtaining approval from said user about said second set of entities; storing said evolving algorithm as a product algorithm; and storing said product algorithm for subsequent usage on said image set.

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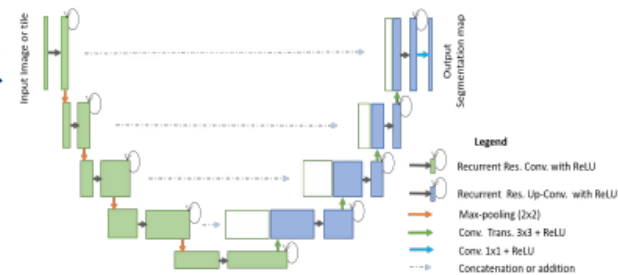


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Deep Lens VIPER

We have also been training our system to help pathologists by classifying and identifying difficult tumors with accuracy at levels much higher than any of our peers in machine vision oncology. These methods will be integrated to Deep Lens VIPER in early 2019 and are set to transform pathology, oncology and drug development - the entire cancer industry, as together we search for a cure.

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The Infringing Product stores the evolving algorithm and runs the stored algorithm on all the data to automatically classify additional images.